Baltic Marine Environment Protection Commission

Outcome of the HELCOM workshop on fish indicators

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The workshop was held on 10 May 2016 at the premises of the Swedish Agency for Marine and Water Management (SWAM), Gothenburg, Sweden.

The aim of the workshop was to present and discuss the background and status of the HELCOM core indicators related to fish and to allow for a round of discussion between the science community, fisheries and environmental administrations on issues related to linking assessments for environmental- and fisheries policy.

The workshop was attended by representatives of Denmark, Estonia, EU, Finland, Germany, Latvia, Poland, Sweden and Observers from ICES, BSAC and Fisheries Secretariat. The list of Workshop Participants is contained in **Annex 1**.

Ms. Ulrika Gunnartz, Swedish Agency for Marine and Water Management, acted as host and Chair of the workshop. Ms. Lena Avellan, HELCOM Secretariat, acted as secretary of the workshop.

Meeting documents and presentations are available at the meeting site in the HELCOM Meeting Portal.

I. Introduction

1. The Chair welcomed the participants and outlined the aim of the workshop as learning more about the HELCOM core indicators on fish and what indicator based assessments mean from a fisheries management perspective.

2. The Executive Secretary of HELCOM thanked the Swedish Agency for Marine and Water Management for hosting the workshop and the good participation. The executive secretary invited the workshop to be a start of discussions between indicator experts and fisheries managers, and to be an opportunity to address remaining development gaps in the core indicators.

HELCOM HOLAS II

3. HELCOM Secretariat presented the on-going work to develop the second holistic assessment of the ecosystem health of the Baltic Sea (HOLAS II) (**Presentation 1**).

4. HOLAS II will serve as a follow up to the HELCOM Baltic Sea Action Plan and as a roof report for Contracting Parties who are also EU Member States in their reporting on Article 8 of the MSFD in 2018.

5. The core indicators will form the basis for the assessment of Good Environmental Status in HOLAS II. The assessment will also include spatial data on pressures for which work is currently ongoing through circulation of a questionnaire to establish linkages between human activities such as fisheries and pressures.

Linkage of assessments between MSFD and CFP

Comment from DG Environment

6. DG Environment presented views on how environmental assessments under EU MSFD link to fisheries management (**Presentation 2**).

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7. One of the aims of the ongoing revision of the Commission Decision on GES criteria is to make stronger links between MSFD and other EU legislation and policy such as foodstuff directives, water framework directive, habitats directive and common fisheries policy (CFP). The overall aim of the MSFD of reaching GES and the aim of CFP of reaching MSY are considered to be consistent.

8. Commercially exploited fish stocks to be assessed under MSFD Descriptor 3 are identified in the revised decision text based on the link to CFP. The same assessments produced for the CFP should be directly used as an assessment of MSFD Descriptor 3 without reprocessing for relevant stocks.

9. The workshop participants discussed how assessments under D3 should be done for fish stocks that are exploited commercially and/or recreationally but are not assessed by ICES, and for which only limited data is collected under the CFP data collection framework (DCF), for example coastal species such as perch and pikeperch. It was concluded that a common understanding on the issue is needed and that the current species lists stemming from the CFP are not sufficiently precise. The selection could be made based on the scale of the fishery as this indicates what type of assessment is needed.

Comment from the Chair of HELCOM Fish Working Group

10. The Chair of HELCOM Fish WG commented on the development of the CFP in recent years, moving from a single species approach towards a multispecies approach and that the concept of achieving MSY is one of the aspects bringing together CFP and MSFD assessments. The CFP has been moving more towards a regional approach and a regional approach to assessments and implementation is considered more suitable than developing criteria that apply in all regions.

11. The multispecies plan for the Baltic Sea, which will be published shortly, will impact on how CFP is implemented in the Baltic Sea. The plan, which is closely linked to policy, covers the pelagic stocks and has strong objectives to implement ecosystem approach and aims to contribute to achieving GES. The assessments will give direct input to MSFD Descriptor 3 and will also contribute to other descriptors where fish are relevant, such as descriptors 1 and 4.

12. A two way consideration is needed in relation to status assessments of fish, recognizing that fishing activities affect the status of the environment and that the status of the environment affects the status of the fish stocks.

13. Preparations for a technical working group under BALTFISH is being established to finalize assessment work on cod. BALTFISH is exploring how to use existing mechanisms for producing advice on fisheries e.g. by requesting ICES advice through the established mechanisms between ICES and the European Commission, further noting that advice on cod has been identified as a special topic.

14. The participants of the workshop noted that compilation of information on recreational fisheries should draw from all available sources.

Core indicator development work

15. HELCOM Secretariat presented the ongoing work on developing core indicators (**Presentation 3**), noting the on-going process of developing core indicators through a Lead Country approach.

16. The participants of the workshop noted that indicator proposals are to be developed by mid-October in order to be presented for adoption by HELCOM HOD 51-2016 in December and consecutive inclusion in the HOLAS II status assessment. Indicator work in HELCOM is currently focused on meeting this short-term goal. The long-term goal is to develop transparent indicator based assessment systems and additional indicators as needed.

II. ICES indicators under Descriptor 3

17. ICES Secretariat presented the assessments of Descriptor 3 that ICES is planning to develop and that will be provided as input for HELCOM HOLAS II (**Presentation 4**), noting that by 2017 stock assessments will be provided for commercially exploited species for criteria D3C1 and D3C2 and additionally a summary sheet will be prepared per ecoregion for D3.

18. ICES recommends that indicators should currently not be used to assess D3C3 on age and size distribution of species, as no indicator is fully operational with an agreed threshold. Furthermore many of the proposed indicators co-vary with evaluations of FMSY and SSB and thus it would be sufficient to evaluate those parameters.

19. ICES is working on developing assessments of recreational fisheries and would recommend national efforts to be focussed on stocks for which recreational fisheries are considered to be of relevance based on total landings.

20. The workshop participants discussed the scope of the ICES assessment given the data available on commercially exploited fish. ICES considers the DCF to provide data for all commercially exploited species.

21. The workshop noted the information that ICES is working on providing data-arrangements from the trawl survey database for assessment purposes, such as LFI, communicating with HELCOM and OSPAR on the needs to develop this.

III. Good Environmental Status of HELCOM offshore fish indicators

22. Sweden as the Lead Country presented work on the core indicator 'Proportion of large fish in the offshore community' (LFI) and the candidate indicator 'Maximum length of fish in the offshore in the pelagic community' (ML) (**Presentation 5**), noting that LFI and ML indicators are considered as being complementary and that by evaluating both the cause of a signal can be better determined.

23. Sweden highlighted that LFI should be considered as a food-web indicator evaluating the strong known links in the fish community between cod, herring and sprat, and further the linkages of cod to other species such as stickleback and flounder.

24. The indicator is currently calculated separately for three sub-basins and also for the three sub-basins together, however given the highly mobile nature of the pelagic community it is considered relevant to only make one calculation covering all three units. The workshop participants further noted that it is not considered meaningful to do a pelagic community LFI evaluations for smaller areas such as national waters.

25. The workshop participants concluded that from a conceptual point of view it is relevant to evaluate both the pelagic- and the demersal fish community jointly in the Baltic Sea in the LFI indicator.

26. The workshop participants discussed the relevance of LFI for providing guidance to fisheries management and concluded that LFI is relevant, noting that LFI is affected by both fishing pressure and ecosystem status similarly as for other fish indicators.

27. The workshop participants discussed the driver for the detected change in LFI in the pelagic community in recent years, and noted the view by Sweden that this change is due to fishing pressure and maybe also due to anoxia in central parts of the Baltic Sea both affecting the cod population.

28. The workshop participants discussed the signal of the ML indicator for cod, noting that the ML calculated based on pelagic data indicate that current catches of fish are below 20cm although it is known that larger fish exist in the system, and noted the view by Sweden that this is a true signal for the pelagic community and not an artefact in the data.

Data availability

29. Current development work of the LFI indicator is based on pelagic control hauls (BIAS) including cod, herring, sprat and stickleback for which data is standardised using a GAM model. The size threshold used is 38 cm, which has been the minimum landing size for cod, and is considered to reflect an approximate size at reproductive maturity. Pelagic trawl survey data is currently not held in an international database, thus currently work is done using Swedish data with the aim to include data from other Contracting Parties of HELCOM for HOLAS II.

30. Demersal trawl data are held in the ICES DATRAS database, however the workshop participants discussed the known problems with the relevance of the data noting that it is only CPUE standardized for cod since 1991 and for flounder since 2002. The lack of standardization of the data for the other species and additionally the lack of information on whether all caught species have been reported every year or only a sub-set will require data to be scrutinized and cleaned before it can be used. This is considered to be a major undertaking and should be seen as a long-term goal.

31. The workshop noted that ICES is working with national data centres to improve the data, and that the process will take time. The DATRAS database was designed for single species assessments and the current aim of evaluating several species require some adaptation.

32. Sweden presented a comparison of the cod abundance estimated based on the pelagic and the demersal trawls, showing a generally similar trend however in the last few years the trend is divergent in the two datasets. The workshop concluded that in the further development of the LFI indicator it would be relevant to explore the option of including data on cod from both the demersal and the pelagic trawl surveys, noting the drawback that the time-series of the indicator would be shorter since the demersal data in DATRAS start in 1991 compared to 1979 in the pelagic data.

33. The workshop participants concluded that the indicator should only use data that is well known, so that the assessment only deals with known uncertainties, not unknown uncertainties such as unaccounted for errors in the data.

GES boundary approach

34. The proposal for GES boundary is based on a modern baseline approach. The time period reflecting the baseline conditions have been selected when conditions are stable and the stable period is twice the generation period of cod. It was considered appropriate to exclude the period in the 1970s to 1980s when cod abundance was higher than during any other recorded time period when selecting the baseline. The next step is to conclude on whether the selected period reflects a status considered to be at GES or not, and this issue has not yet been fully concluded. In the proposal a bootstrap method is used to calculate 95% confidence interval around the baseline, and values below this boundary are considered to reflect sub-GES.

35. The workshop discussed the appropriateness of selecting a modern baseline to be used in setting the GES boundary when it is known that the system is affected by fishing pressure and selecting a period when cod is recorded to be at historically low abundance but not lowest recorded size. It was concluded that the proposed modern baseline approach could be the most appropriate method currently available, however further considerations are needed to agree on whether a more conservative target is required considered the uncertainties of how the community has been affected by fishing pressures in the period compared to the current proposal.

36. The workshop participants agreed that on on-line meeting will be set up to continue the discussion on setting the GES boundary and informed on. The Lead Country will develop a proposal for discussion based on the guidance provided.

37. The workshop participants noted that Germany is considering an approach of evaluating the foodweb by summing SSB for species according to functional groups. It will be explored in a follow up on-line meeting how the approach relates to the integration of the D3C2 indicators using the HELCOM biodiversity tool under development in the HELCOM project BalticBOOST.

IV. Incidental catches

38. Germany as Lead Country presented work on the core indicator 'Number of drowned mammals and waterbirds in fishing gear' (**Presentation 6**), noting the current aim to focus development of targets for the two harbour porpoise populations and a sub-set of birds namely long-tailed duck, common guillemot and greater scaup for which preliminary assessments of the sustainability of by-catch have been made in earlier studies.

39. The target for the Kattegat/Belt sea population of harbour porpoise is 1% of the best available abundance estimate per year, however noting that the best available abundance estimate may vary by 170% between years and it should be discussed if a precautionary approach should be used by evaluating against the lower 95% CI if abundance estimates. The target for the depleted Baltic Proper population is zero.

40. Focus in monitoring has been on collecting information from large trawlers, however collecting incidental data from medium and small scale fisheries would be important in the Baltic Sea as these most often use static gear such as gillnets which are known to pose the greatest threat to harbour porpoise and diving birds. Further, gillnet fishing effort is relevant for assessing bird and mammal by-catch and needed in a relevant parameter such as kilometres deployed net per time fished.

41. The workshop noted that a Polish study found that it is not feasible to identify bird species by-caught in a small fishing boat from a supporting boat as the supporting boat needs to stay ca 30 meters away.

42. The workshop discussed ways forward to collect the relevant data noting that a DCF requirement to record by-catch in the logbook would shift monitoring responsibility to fishermen. Currently reporting by-catch is voluntary for fishermen. In Poland voluntary reporting has decreased since the implementation of the drift net ban. The workshop concluded that the best way forward is to build trust between fishermen and scientists, explaining the purpose of collecting the data and the purpose for which it will be used and how. Reporting by-catch will not automatically lead to closing of fisheries and knowing the management implications is considered to be a better way forward than other incentives to report.

43. ASCOBANS is updating the Jastarnia plan in cooperation with stakeholders with the aim of completing the plan by the end of the year.

V. Indicators on salmon, seatrout and coastal fish

Migratory fish

44. Finland as the Lead Country presented the core indicators 'Abundance of salmon spawners and smolt' (**Presentation 7**) and 'Abundance of seatrout spawners and parr' (**Presentation 8**).

45. GES boundary for salmon is set at the smolt production at MSY and is expressed proportional to the estimated potential production capacity. There is some variation in this percentage per stock. Work on reparametrization of stock-recruit functions directly linked to indications is ongoing and may change the earlier estimated percentages of stock specific GES boundaries. The GES boundary is set based on a probability distribution, and the level of uncertainty that should be tolerated for the various stocks in the indicator is still being discussed.

46. The workshop participants discussed the GES boundary for trout which is set as 50% of the maximum observed value, and noted that it is considered to be accurate as parr density values vary naturally between years and lower values compared to what would be expected based on environmental conditions have been observed. Currently the alignment between the 50% GES boundary and FMSY is unclear.

47. Further consideration might be needed regarding the assessment of the salmon and seatrout as commercially exploited species from the perspective of combining assessments under D1 and D3 since for example ICES does not estimate FMSY or SSB values for sea trout.

48. The workshop participants discussed the reasons behind the currently improving status of salmon in the Baltic Sea and noted that it is likely to be a combination of improved natural survival rate in the sea and a significantly reduced fishing pressure at sea.

49. The workshop participants discussed the usefulness of the salmon and seatrout indicators from a management perspective, noting that there is a strong link between the indicator and management making the indicators very useful. Management actions for salmon take place in the open sea and coastal area, whereas for seatrout management actions are in particularly needed at the coast close to river mouth areas where the fish live at least the first year after smoltification.

50. The potential impact on salmon and seatrout stocks by growing populations of seals was discussed, concluding that it is difficult to define this linkage precisely and that other linkages such as availability of prey items like sprat and herring may have a stronger influence.

Coastal fish

51. Sweden as Lead Country presented the core indicator 'Abundance of coastal fish key species' (**Presentation 9**) and 'Abundance of coastal fish key functional groups' (**Presentation 10**) that have been developed through the HELCOM expert group Fish-Pro.

52. The coastal fish communities are considered to be local in appearance with strong regional differences, requiring a generic indicator with assessment unit specific GES boundaries building on the relevant monitoring data available for that unit.

53. The assessment unit specific GES boundary approach is dependent on the availability of data. If data is available for over 15 years, then a baseline approach is used, if less data is available then a trend approach is used. For HOLAS II the trend based approach is typically relying on a minimum of 8 years.

54. The indicators will be updated as an input to HOLAS II and an assessment system is being developed with a database for storing the core indicator relevant data is being developed through the HELCOM project BalticBOOST.

55. The workshop participants discussed the large number of pressures affecting the coastal fish communities. It was concluded that applying appropriate measures based on the status assessment is difficult due to the large number of pressures in general, and appropriate management action will require case by case considerations to identify the most relevant pressure in the concerned area.

VI. Summary discussion and wrap up

56. In the summary discussion the Chair concluded that the workshop has been covering a new area of linking environmental policy with fisheries policy. The history of environmental assessments provides a good framework for assessing fish in an ecosystem context, which is the aim of the multispecies assessments, for example by providing information on environmental parameters.

57. The workshop participants discussed that the current status of the cod stock is a good argument for moving towards an ecosystem approach to fisheries management, and welcomed continued discussions linking environmental- and fisheries management for example in HELCOM and BALTFISH.

58. The workshop participants discussed that the best way to successfully improve the status of the Baltic Sea requires trust and a common understanding of the status among stakeholders that allows for successful implementation of measures.

59. The Chair concluded that linked assessments under the CFP and the MSFD will require more clarity on how the policy requirements will develop in the future and further dialogue among experts, managers and stakeholders.

60. The Chair will present the outcome of the workshop to HELCOM FISH 4-2016, meeting 11-12 May 2016.

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Gothenburg, Sweden, 10 May 2016

Annex 1. List of participants

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